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Research Note

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IMPORTANCE OF TIMBER-BASED EMPLOYMENT TO THE ECONOMIC BASE OF THE DOUGLAS-FIR REGION OF OREGON, WASHINGTON, AND NORTHERN CALIFORNIA

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ABSTRACT

Degree of economic dependency upon timber industries was estimated for 15 subareas of the Douglas-fir region of Washington, Oregon, and California. This analysis was part of a study of how the region's forest resources can better contribute to the economic growth and development of the Douglas-fir region. Dependency, measured in terms of the percent of economic (or export) base employment accounted for by timber-dependent industries, ranged from 6.2 percent for the Seattle economic area to 99.4 percent for the Roseburg area. Timber-dependent industries accounted for approximately 45 percent of the Douglas-fir region's economic base employment.

The Pacific Northwest Forest and Range Experiment Station is studying how forest resources can better contribute to economic growth of the Douglas-fir region. One of the first tasks of this study was to estimate the dependency of the region's economy upon timber-based industries (i.e., "Lumber and Wood Products," SIC 24; "Paper and Allied

Products," SIC 26; and, "Forestry," SIC 08).^{1/} The purpose of this note is to show (1) how the degree of dependency was estimated and (2) how dependency varies between subareas of the region.

Analysis Utilizes Economic Base Concept

The criterion for this analysis of timber dependency is the economic base concept. The economic base as used here is the employment within a community or region that produces goods and services for markets outside the community or region. In contrast, service or residentiary employment produces for local consumption. Generally speaking, most manufacturing employment is classified as economic base, while service employment (e.g., barber shops, realty firms, schools, and local government) is primarily geared to local needs.

Residentiary employment is supported by a community's (or region's) economic base. Dollar inflows from export sales of the products of the economic base industries provide income to wage earners and entrepreneurs to spend on locally purchased goods and services. In most cases, the economic growth of a community or region is dependent upon the success of its economic base. As Andrews points out, "If a community's trade balance becomes negative for a considerable period or if the exporting functions decline in activity...an eventual downward adjustment in total community population is almost certain to result."^{2/}

Excess-Employment Techniques Used to Estimate Economic Base

In order to assess variation in timber dependency, we divided the 41-county Douglas-fir region into 15 economic areas, based essentially on commuting distances and shopping patterns (fig. 1). The largest city in each economic area is identified as the growth center, since typically it is the most rapidly growing part of an economic area. The growth center and its surrounding communities represent an economic area characterized by a high degree of interdependence and internal economic linkages.

We used the excess-employment technique to identify the portion of the employment in each area which was engaged in economic base

^{1/} Standard Industrial Classification (SIC) from Bureau of the Budget, "Standard Industrial Classification Manual, 1967."

^{2/} Andrews, Richard B. Mechanics of the urban economic base: historical development of the base concept. Land Econ. 29(2): 161-167.



activities.^{3/} This approach, in its simplest form, accepts the national distribution of employment among industries as a norm. For any sector of an area's economy, an industry with employment in excess of this norm is considered to be producing for export markets, and therefore is part of the area's economic base. For example, in the Eugene economic area, i.e., Lane County, only one manufacturing industry group--lumber, wood products and furniture--is shown as having had excess employment in 1960 (table 1). Two "other commodity" producing industry groups--forestry and fisheries and contract construction--also were shown to be export producing. In addition, because of the services provided by businesses in the Eugene economic area to residents of other economic areas, six "noncommodity" or service industry groups are also considered as being export producing and thus are part of the Eugene area economic base. Altogether, 29.5 percent of the total employment in the Eugene economic area was in excess of the national norm and was therefore defined as being engaged in export production.

Used as indicators of area employment in timber-dependent manufacturing and forestry activities were the percentage of an area's excess employment in three industry groups: lumber, wood products, and furniture; other and miscellaneous manufacturing; and forestry and fisheries.^{4/} In the Eugene economic area, for example, excess employment in timber-dependent industries was 22.6 percent of total employment, or 13,000 workers in 1960. An additional 3,900 workers were considered excess employment in contract construction and noncommodity producing activities. Thus, 76.6 percent of the total 1960 excess employment in the Eugene economic area was in timber-dependent manufacturing and forestry activities. This percentage is defined as the timber-dependency indicator.

^{3/} This technique was used in the early 1940's in studies of the U.S. economy (Hoover, Edgar M. Jr. Industrial location and national resources. Nat. Resources Planning Board. 1943). Refinements in the technique were made recently for comparative community studies (Ullman, Edward L., and Dacey, M. F. The minimum requirements approach to the urban economic base. Pap. Proc. Reg. Sci. Ass. 6: 175-194. 1960). Our use of the excess-employment technique yields results which are not significantly different from the more refined approaches.

^{4/} These three industry groups are the ones containing "Lumber and Wood Products," SIC 24, "Paper and Allied Products," SIC 26, and "Forestry," SIC 08. There may be some distortion in using the industry group as if it represented the specific industry because there are other industries included in each group. However, this distortion is considered minimal because industry classes SIC 24, SIC 26, and SIC 08 heavily dominate their respective industry groups in the Douglas-fir region.

Table 1.--Percentage of total and excess employment in specified industry
groups in the Eugene economic area and the United States, 1960

(In percent)

Industry group	Eugene economic area	United States	Excess employment in the Eugene economic area ^{1/}
Manufacturing:			
Food and kindred products	2.2	2.9	--
Textile mill products	(2/)	1.5	--
Apparel	(2/)	1.9	--
Lumber, wood products, furniture	23.8	1.7	22.1
Printing and publishing	1.4	1.8	--
Chemicals and allied products	0.1	1.4	--
Electrical and other machinery	0.9	4.9	--
Motor vehicles and equipment	(2/)	1.4	--
Other transportation equipment	0.1	1.6	--
Other and miscellaneous	1.1	9.1	--
Total manufacturing ^{3/}	29.8	28.3	22.1
Other commodity:			
Agriculture	3.7	6.9	--
Forestry and fisheries	0.6	0.2	0.5
Mining	0.3	1.1	--
Contract construction	7.0	6.2	0.8
Total other commodity ^{3/}	11.6	14.2	1.3
Noncommodity:			
Railroads and railroad express	3.1	1.5	1.5
Trucking and warehousing	1.3	1.5	--
Other transportation	0.6	1.4	--
Communications	1.3	1.3	--
Utilities and sanitary services	1.4	1.4	--
Wholesale trade	4.0	3.6	0.4
Food and dairy products stores	2.5	2.7	--
Eating and drinking places	3.1	2.9	0.2
Other retail trade	10.2	9.8	0.4
Finances, insurance, and real estate	3.0	4.3	--
Hotels and other personal services	3.4	3.1	0.2
Private households	2.9	3.1	--
Business and repair services	2.6	2.6	--
Entertainment and recreation services	0.6	0.8	--
Medical and professional services	15.5	12.2	3.2
Public administration	3.2	5.2	--
Total noncommodity ^{3/}	58.6	57.5	6.1
Total employment ^{3/}	100.0	100.0	29.5

^{1/} Dash signifies no excess employment. Figures may not be exactly equal to Eugene minus U.S. due to rounding.

^{2/} 0.05 percent or less.

^{3/} Sum of parts may not equal totals due to rounding.

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Timber Dependency Varies Between
Economic Areas of Douglas-Fir Region

Highly timber-dependent areas were defined as those with a timber-dependency indicator of 70 percent or greater, whereas moderately timber-dependent areas can be identified by timber-dependency indicator of 30 to 69 percent (see table 2). Only three economic areas--Seattle, Portland, Salem--were slightly timber dependent (less than 30 percent), but nine areas were highly timber dependent.

Table 2.--Classification of economic areas by degree
of dependency upon timber-based employment

Dependency	Economic area ^{1/}	Percentage of 1960 excess employment dependent on timber-based employment
Slight	Seattle	6.2
	Portland	23.8
	Salem	29.3
Moderate	Bellingham	30.4
	Tacoma	32.5
	Astoria	63.1
High	Medford	70.0
	Corvallis	74.3
	Eugene	76.6
	Longview	81.5
	Aberdeen	88.1
	Eureka	89.6
	Port Angeles	90.5
	Coos Bay	91.6
	Roseburg	99.4
Douglas-fir region		44.8

^{1/} Economic areas are identified by the names of their respective growth centers.